iCue™ Streaming Server Software

Installation Guide V1.2

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If you find some points in this user guide unclear then please let us know, so we can improve this documentation.
Thank you! Mail to: documentation@teracue.com

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I. Information about the manual

This manual should help administrators and users to make their the first steps with the iCue™ software.

If you received this publication as a PDF, then it's a good idea to print it out for future reference.

It is best to use this user guide directly in front of your computer, by doing so you try out everything at once.

.!. Important features are marked by this sign.

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1. Overview

iCue™ is your own in-house TV station for streaming media with an integrated video archive.The iCue™ Streaming System allows the digital distribution, management and recording of TV channels and camera signals: Any video at any time on any workplace. iCue™ offers flexible video access: LIVE and ONDEMAND, whether on PC's or TV's.

In-House Streaming:
Network-based transmission of video signals. Video-over-IP technology is used as the distribution method for the video and audio signals. All signals are digitally transmitted on the standard data network. The network is used as a virtual AV-router: making additional cabling, amplification and video switching unnecessary.

Professional Quality:
The end-to-end iCue™ system with the integrated all digital signal processing enables professional DVD and DVB output. The open video standards MPEG-2 and MPEG-4/H.264 are supported in SD/HD resolutions by all iCue™ Server models.

iCue™ consists of the following three system components. The individual iCue™ components can be used modularly:

iCue™ Server: Recording and storing TV or camera signals, upload of video files, managing and indexing video content (metadata), provision of on-demand videos and publishing, broadcasting of own streaming channels as well as integrated management of users and rights.

iCue™ Player: All-in-One PC Stream Player: Replay of LIVE, NVOD, VOD streams, plug-in option Trim&Export for cutting and exporting recorded content, remote control of the basic functionality of the iCue™ Server.

iCueTV: Graphical interface for TV users with set top boxes, utilization of the iCue™ system on plasma displays, LCDs and projectors in seminar rooms, meeting rooms, auditoriums and lecture rooms.

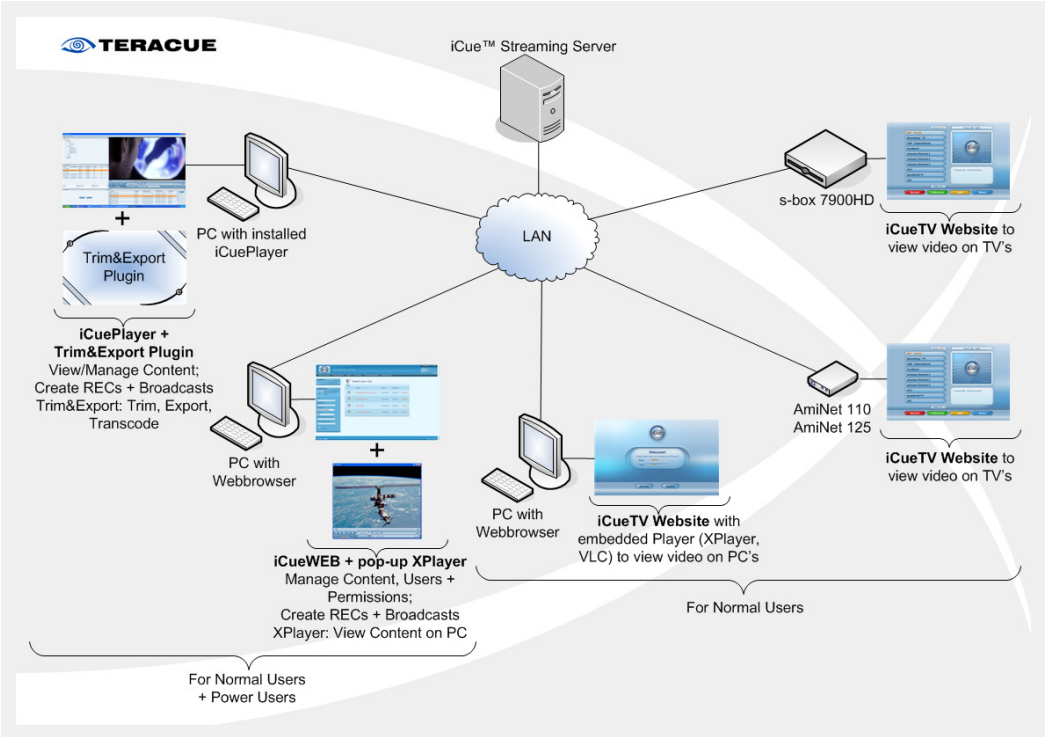


Figure 1: iCue™ Overview

2. Requirements

The following sub-chapters describes the basic software-, hardware- and network requirements, which are needed to guarantee the operation of the iCue™ Server Software. The following requirements are the minimum and recommended requirements of the iCue™ Server Software.

2.1 Hardware

Pentium 4, 3.0 GHz, 2 MB, Hyper Threading
4 GByte RAM

Free Hard Disc:
The needed free disc space depends on your own requirements, because each recording needs a certain disc space. You must calculate your own disc space requirements. Please calculate your personal needed disc space like follows:

$$Disc\ Space\ in\ Byte = \frac{Bitrate\ in\ Bit/s * Duration\ in\ Sec.}{8}$$

$$1\,h = 60\ \text{sec.} * 60 = 3600\ \text{sec.}$$
$$1\,day = 3600\ \text{sec.} * 24 = 86400\ \text{sec.}$$

Example:

- If a 5 Mbit stream will be recorded currently 1 hour, you need per hour minimum 2.25 GByte free disc space.

$$\left(\frac{5 * 10^6\ Bit/s * 3600\ Sec.}{8} = 2{,}25 * 10^9\ Byte \quad as\ per\ SI\text{–}Prefix \right)$$

- If a 5 Mbit/s stream will be recorded currently 24 hours, you need per day minimum 54 GByte free disc space.

$$\left(\frac{5 * 10^6\ Bit/s * 86400\ Sec.}{8} = 54 * 10^9\ Byte \quad as\ per\ SI\text{–}Prefix \right)$$

.!. But the hard disc must have minimum 500 GByte free disc space.

.!. It is recommended that servers write/read their video files to a NAS. Concerning the requirements to the NAS manufacturer, please see the subchapter 2.1.6 on page 11.

2.1.1 Storage Extension

It is possible to make a storage extension by adding network storage, but please note that this requires also a manual update of the upload path in the iCue Configuration Manager.

2.1.1.1 Drive Path Extension

A drive path extension can be made at the iCue Server.

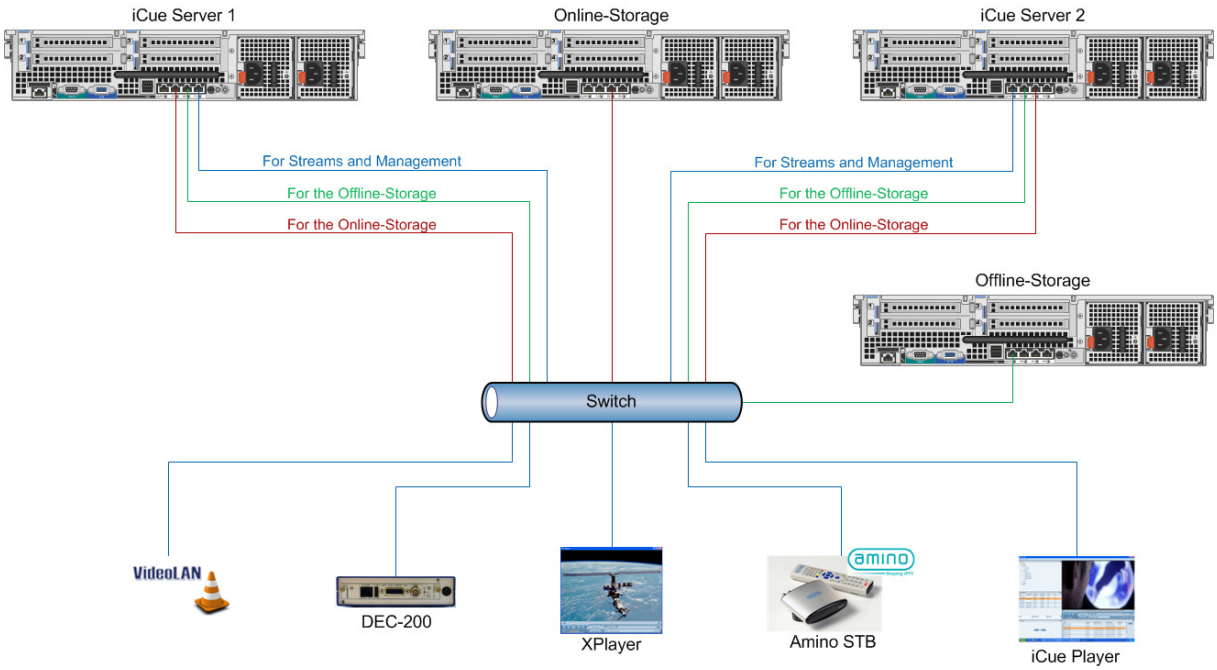
2.1.1.2 Drive Path Modification

It is possible to change the drive path in the iCue Configuration Manager, but please note that the specified path in the database will not be updated automatically. We recommend archiving the database before changing the drive path. After the drive path modification you can upload the archived database at the iCue Server again.

2.1.2 Network Interfaces

iCue supports maximum three network interfaces which are intended for:

the streams and the management,
the online storage (like RAID, NAS) and
the offline storage (this is optional)



2.1.3 Domain Name Server DNS

iCue Server supports the name resolution to a NAS, but the name resolution at redundancy systems is not supported. At redundancy iCue systems a static IP-address or a static DHCP is mandatory.

2.1.4 Ports

Protocol	Multicast / Port	Type	Description	iCue Server	iCue Player	XPlayer
XPlayer UDP control	8888	TCP		LBS		✓
RTSP	554	TCP		LBS		
iCue Remote Control	1501, 1501	UDP		LBS		
XML iCue Content Broadcast	225.25.25.25:4445	UDP		LBS		✓
HTTP Video Streaming	81	TCP	Video Streams	✓		
Live Message	225.25.25.25:5225	UDP	iCue Announcement and Redundancy	LBS	✓	
UDP Com and Video Streaming Port	5000-5064	UDP		✓		✓
TCP SAP Announcement	8889	TCP				✓
Microsoft . Remoting	5678	TCP		✓	✓	
DCOM	135	UDP/ TCP	DCOM protocol	✓		✓
TCP Com and Video Streaming Port	3123	TCP		Pump	✓	✓
Reporting	225.25.25.25:5226	UDP		✓	✓	
Live Message	229.29.29.29:9100	UDP	MultiCoder Announcement			
Live Message	229.29.29.29:9000	UDP	ElementManager Announcement			
SNMP	161	UDP				
SNMP Trap	162	UDP		✓		
Telnet	23	TCP				
HTTP	80	TCP	Hypertext Transfer Protocol	✓		
SAP	224.2.127.254:9875	UDP	Session Announcement Protocol, RFC 2974	✓	✓	✓
Remote Control	2323	TCP				
SSH	22	TCP	Secure Shell			
Remote Control	225.0.0.1:1500	UDP				
Remote Control	225.0.0.1:1501	UDP	Back Channel			
Remote Control	225.0.0.1:1313	UDP	Reset			
Remote Control	2222	TCP	DVB-100			
Remote Control	16384	TCP	DVB-100			
Remote Control	16385	TCP	DVB-100			
FTP	20, 21	TCP		✓		
UDP Multicast/Unicast		UDP	Video Streams	✓	✓	✓
TCP Streaming		TCP	Video Streams			
NTP	123	TCP/ UDP	Network Time Protocol			
Live Message	225.25.25.25:5239	UDP	MultiCoder Status Message			

Figure 2: List of used network ports, multicast-, IP-addresses of the iCue Server

✓ = is used

Figure 2 listed the network ports, multicast-, IP-addresses that are used by the iCue Server, the iCue Player and the XPlayer. These ports, multicast-, IP-addresses must be available and must not be blocked within the network, by involved PCs and the IT infrastructure.

Furthermore do not use the ports for your video stream, because these ports are also used from Teracue products.

Port:
135
161
162
1313
1500
1501
4445
5225
5225
5226
5239
5678
9000
9100
9875
5000 – 5064

Figure 3: Network ports, which should not be used

2.1.5 Redundancy iCue Server Hardware

In terms of running a clustered and redundant iCue Server system (e. g. 2x iCue Servers), we recommend using identically hardware for all redundant iCue Server systems.

This is how Teracue has tested redundancy, and server clustering. Any other mix of hardware, software or a mix of operating systems has not been tested and will not be tested.

2.1.6 NAS Hardware

Teracue is not able to recommend a specific NAS system, this has to be done by the NAS manufacturer according to the following requirements.

2.1.6.1 General

- CIFS network file system access
- Each 1 GB Ethernet port should not be calculated with more than 400 Mbit/s
- The iCue Server needs random access to all files
- Add a minimum of 30% to bandwidth calculation
- The bandwidth should be available for 24/7 operation
- The bandwidth should be available even during a HD crash and rebuild
- The bandwidth requirements for the NAS must be guaranteed and not ‘up to’ or ‘under best conditions’

2.1.6.2 Recording (write) per Video-/Stream-Recording

- iCue writes for each recording three files simultaneously
- Two text files with 10 kbyte
- One TS file is between 10 Mbyte and 100 Mbyte
- iCue writes files with 10 Mbyte blocks
- Six Mbit/s stream = 45 Mbyte/minute = Five blocks per minute

2.1.6.3 Streaming/VoD (read)

- iCue reads/open up to four files simultaneously
- Two text files with 10kbyte
- Two TS files with 10 Mbyte to 100 Mbyte
- iCue reads files in 100 kbyte blocks
- Six Mbit/s stream = 45 Mbyte/minute = 50 blocks per minute

2.1.7 SAN

.!. Teracue strongly do not recommend using a SAN system instead of a NAS.

The data-access will be carried out block-based in a SAN. Because a SAN is direct connected to the server it works for the server like a local drive.

At NAS the server requests at a file based data exchange whole files or parts of files of remotely storage via SMB/CIFS. A NAS is connected over an Ethernet network which has some overhead.

The biggest disadvantage if a SAN is used instead of NAS, extra software needed, like Meta SAN, as an extension to the OS, which allows the servers to read and write to the same directory. Usually, a SAN configuration only allows the servers to access individual sections of the SAN. But for the load balancing with iCue, servers need access to the same directory and same files. Teracue do not recommend using a SAN system due to this extra software, because in the past this extra software lost files and also the performance was bad.

Futhermore SAN managing and the maintenance can be more complicated than on a NAS. There are two main factors to specify the performance. Read and write speed and simultaneous open files. So, on a SAN system the speed will drop, if you read more files at the same time. Additional the operating system WINDOWS does not support shared storage systems.

2.2 Software

Microsoft Windows 2003/2008 SP1 Server

Following windows components are needed:

- Internet Information Services v6.0 or higher with version 6.0 compatibility
- .NET Framework v4.0 or higher (before you install iCue, please be sure whether .NET Framework is installed)

2.2.1 Configuration of Windows Components

Before iCue can be installed Windows components must be adapted.

2.2.1.1 Switch off Windows Firewall

Switch off the Windows Firewall via **>Start >Control Panel > Windows Firewall**.

2.2.1.2 Installation Internet Information Service

Steps:

1. Open Server Manager with **>Start >Run >ServerManager**
2. Step to Roles
3. Add Role **Web Server (IIS)**

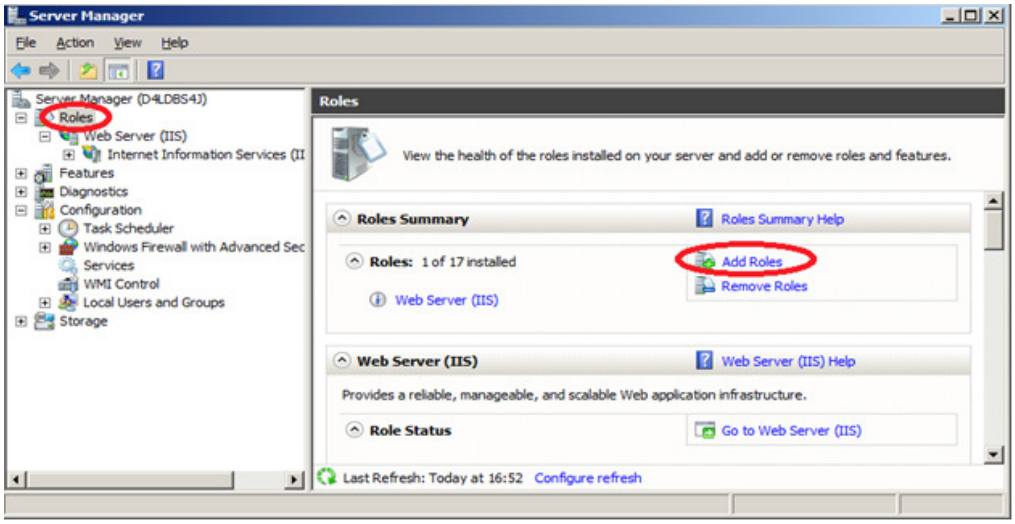


Figure 4: Server Manager to add IIS

The following role services are necessary:

- Static Content (set by default)
- Default Document (set by default)
- Directory Browsing (set by default)
- HTTP Errors (set by default)
- ASP.NET
- Net Extensibility
- ASP
- ISAPI Extensions
- ISAPI Filters
- HTTP Loggin (set by default)
- Request Monitor (set by default)
- Static Content Compresion (set by default)
- ISS Management Console (set by default)
- ISS 6 Management Compability
- IIS 6 Metabase Compability
- ISS 6 WMI Compability
- ISS 6 Scripting Tools
- ISS 6 Management Console

4. Make sure that at IIS Application Development **ASP** is checked (see Figure 5)

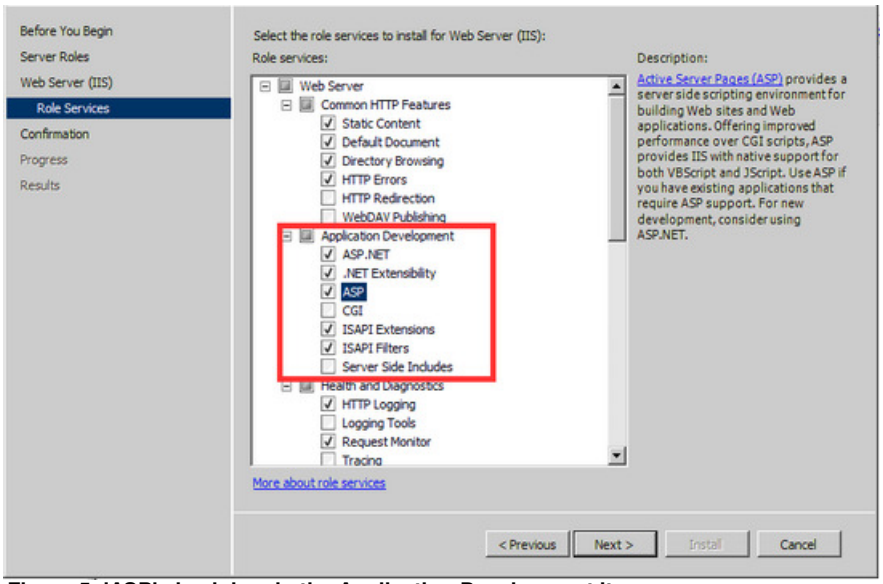


Figure 5: 'ASP' check-box in the Application Development item

5. Make sure that at IIIS options **IIS 6 Compatibility** is checked (with all sub categories)

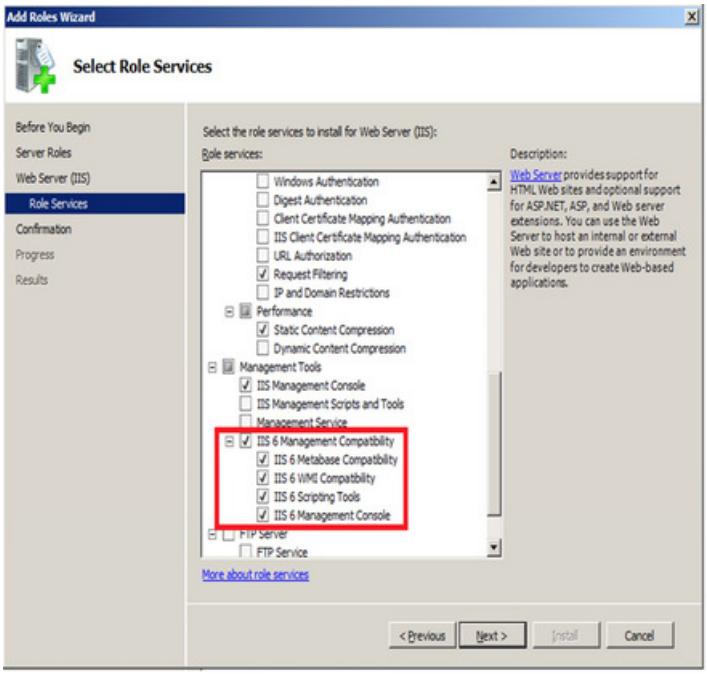


Figure 6: IIS 6 Management Compatibility

2.2.1.3 Register .Net Framework for IIS

The steps described in this chapter are only necessary if **.Net Framework 4.0** is **already installed**. If you install .Net Framework 4.0 after IIS installation (strongly recommended) you can skip this chapter since all steps are done automatically.

Steps for Windows Server 32bit:

1. Open command line with >Start >Run >cmd
2. Register .Net Framework 4.0 with
   c:\windows\microsoft.net\framework\v4.0.30319\aspnet_regiis –i

Steps for Windows Server 64 bit:

1. Open command line with >Start >Run >cmd
2. Register .Net Framework 4.0 with
   c:\windows\microsoft.net\framework64\v4.0.30319\aspnet_regiis –i

The following Application pools of the IIS Manager (inetmgr) must be available:

- ASP .Net v4.0
- ASP .Net v4.0 Classic
- Classic .Net AppPool
- DefaultAppPool

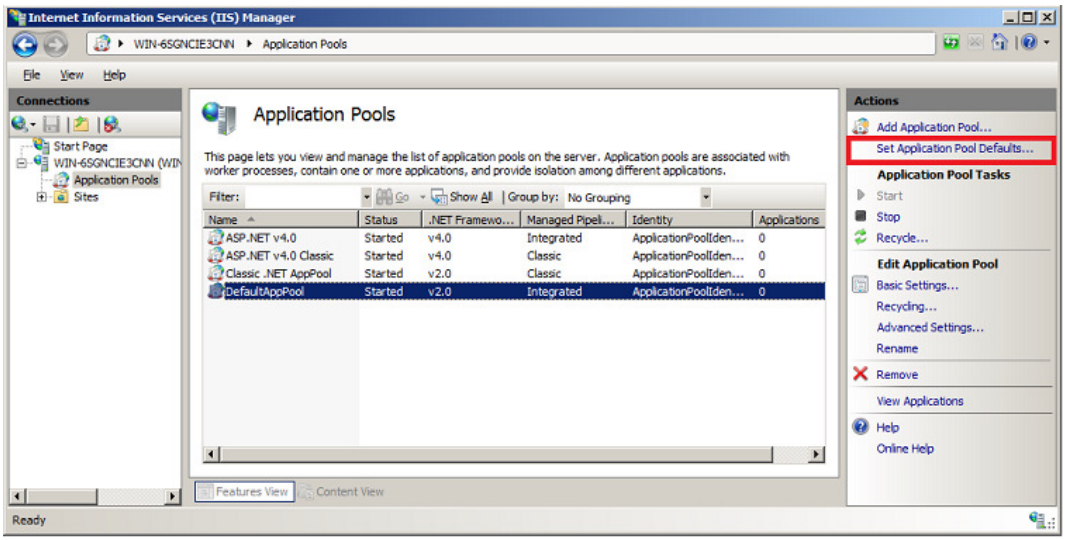

Internet Information Services (IIS) Manager
WIN-6SGNCIE3CNN ▸ Application Pools
File View Help
Connections
Start Page
WIN-6SGNCIE3CNN (WIN
Application Pools
Sites
Application Pools
This page lets you view and manage the list of application pools on the server. Application pools are associated with worker processes, contain one or more applications, and provide isolation among different applications.
Filter:
Show All | Group by: No Grouping
Name | Status | .NET Framewo... | Managed Pipeli... | Identity | Applications
ASP.NET v4.0 | Started | v4.0 | Integrated | ApplicationPoolIden... | 0
ASP.NET v4.0 Classic | Started | v4.0 | Classic | ApplicationPoolIden... | 0
Classic .NET AppPool | Started | v2.0 | Classic | ApplicationPoolIden... | 0
DefaultAppPool | Started | v2.0 | Integrated | ApplicationPoolIden... | 0
Features View
Content View
Ready
Actions
Add Application Pool...
Set Application Pool Defaults...
Application Pool Tasks
Start
Stop
Recycle...
Edit Application Pool
Basic Settings...
Recycling...
Advanced Settings...
Rename
Remove
View Applications
Help
Online Help

Figure 7: IIS Application Pools

Accomplish the following configuration steps:

1. Step to Application Pools default
2. Change .NET Framework version to v4.0
3. Set Enable 32-Bit Applications to True

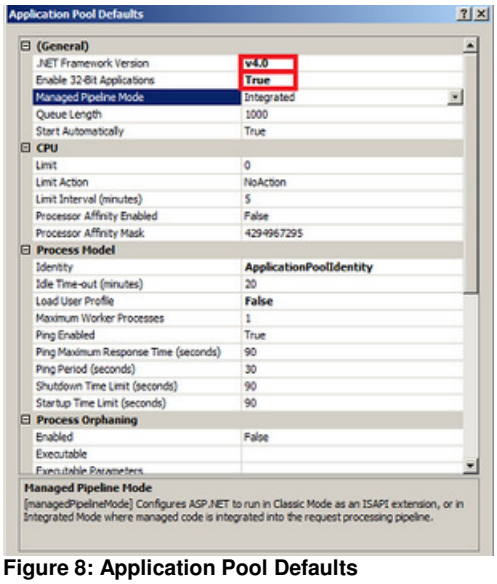

Application Pool Defaults
(General)
.NET Framework Version | v4.0
Enable 32-Bit Applications | True
Managed Pipeline Mode | Integrated
Queue Length | 1000
Start Automatically | True
CPU
Limit | 0
Limit Action | NoAction
Limit Interval (minutes) | 5
Processor Affinity Enabled | False
Processor Affinity Mask | 4294967295
Process Model
Identity | ApplicationPoolIdentity
Idle Time-out (minutes) | 20
Load User Profile | False
Maximum Worker Processes | 1
Ping Enabled | True
Ping Maximum Response Time (seconds) | 90
Ping Period (seconds) | 30
Shutdown Time Limit (seconds) | 90
Startup Time Limit (seconds) | 90
Process Orphaning
Enabled | False
Executable
Executable Parameters
Managed Pipeline Mode
[managedPipelineMode] Configures ASP.NET to run in Classic Mode as an ISAPI extension, or in Integrated Mode where managed code is integrated into the request processing pipeline.

Figure 8: Application Pool Defaults

2.2.2 Microsoft .Net Framework

Before you install **iCue™ Server** make sure that **.NET Framework 4.0** is installed on your system.

You can check this via **>Start >Control Panel >Add or Remove Programs**.

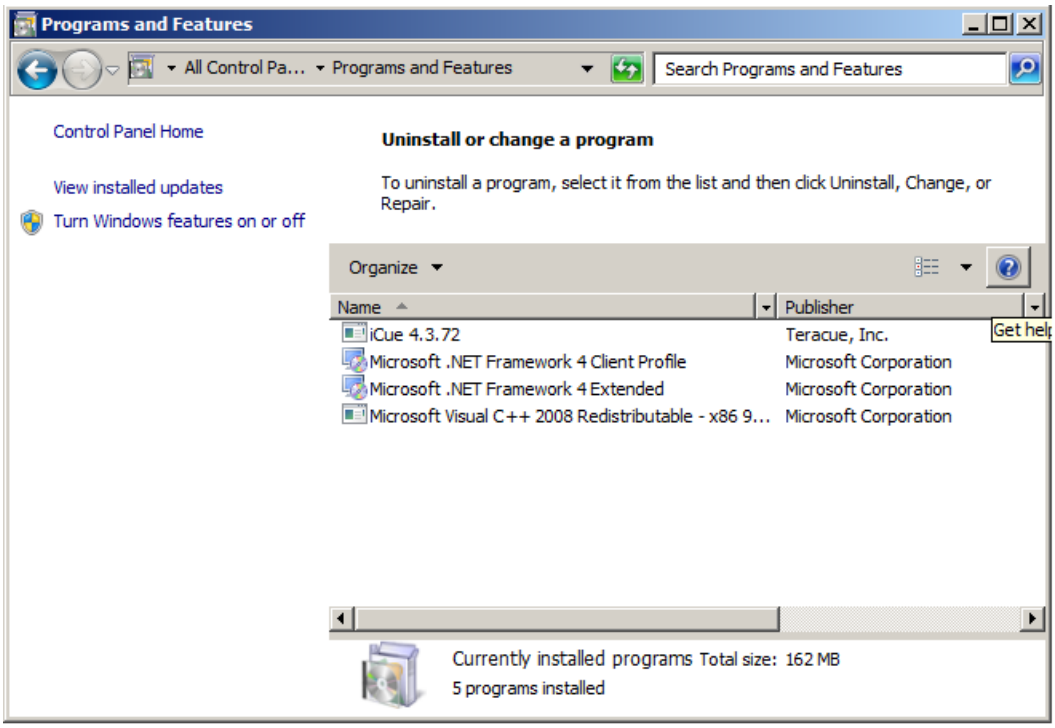

Programs and Features
All Control Pa... ▸ Programs and Features
Search Programs and Features
Control Panel Home
View installed updates
Turn Windows features on or off
Uninstall or change a program
To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.
Organize
Name
Publisher
iCue 4.3.72
Teracue, Inc.
Microsoft .NET Framework 4 Client Profile
Microsoft Corporation
Microsoft .NET Framework 4 Extended
Microsoft Corporation
Microsoft Visual C++ 2008 Redistributable - x86 9...
Microsoft Corporation
Currently installed programs Total size: 162 MB
5 programs installed

Figure 9: .NET Framework 4.0

If the referring **.NET Framework** versions are not installed on your system, please download them (dotnetfx.exe) from the following possibilities:

- From Microsoft web page
- From Teracue DVD
- From the support area of the Teracue website: http://www.teracue.com

.!. We recommend accomplishing the Microsoft update to guarantee that all necessary updates are installed.

2.2.3 User Management

Teracue recommends creating following user accounts at the iCue system:

- A local administrator account
- A normal user account
- Optional: For ADS users

2.2.3.1 Local Administrator account

This account should not be used by users. The iCue services must run at this account. The authorisation 'log on as service' has been added to the administrator account.

After an iCue update, please open the iCue configuration manager and execute the 'Log On As' function again. Therefore, please go to ‚File' in the menu of the iCue configuration manager and click on ‚Log On As'. It opens a new window. Click in this window the 'This Account' radio button and enter the user name and password of the local administrator account in the text fields below.

2.2.4 Monitoring Software

We do not recommend using monitoring software, like NAGIOS or MOM (Microsoft Operations Manager), at the server hardware of iCue Server, because the iCue services will be blocked by the monitoring software.

2.2.5 Virus Scanners

When you want use a virus scanner on the server hardware of the iCue Server, please start the virus scanner only to times in which the iCue application (e. g.: recordings) are not running, because the iCue application has a high performance requirement. So, please execute the virus scanner only when iCue is offline or there is enough bandwidth and processor performance available.

.!. But Teracue do not recommend using virus scanners on the server hardware of the iCue Server, because very much files must be scanned and this causes a losing of CPU performances and unexpected errors can occur.

2.3 Network

Ethernet standard: 100 Base-TX (data rate 100 Mbit/s)
Multicast-taugliches Netzwerk
Support of IGMPv2 or higher (Internet Group Management Protocol)

3. ADS authentication in iCue™

Active Directory Structure (ADS) is an implementation of LDAP (Lightweight Directory Access Protocol) directory services by Microsoft. ADS provides central authentication and authorization services for Windows-based computers. The ADS allows administrators to assign policies, deploy software, and apply critical updates to an organization. ADS stores information and settings in a central database. ADS networks can vary from a small installation with a few hundred objects, to a large installation with millions of objects.

If you want to connect the ADS authentication with iCue™, you should assumes an understanding of the iCue™ operation and management. Furthermore you must be well grounded in the ADS topology.

3.1 iCue™ Registry Settings

To implement the ADS authentication in iCue™, you must set some registry settings on the iCue™ Streaming Server at first. Therefore please stop all iCue™ services in the Configuration Manager, go to the Windows Start menu, select 'Run' and enter in text field of the 'Run' window the command '**regedit**'. It opens the registry editor. Please go in data tree of the registry editor to the following path:

HKEY_LOCAL_MACHINE > SOFTWARE > Teracue > iCue > iCueStoreManager

In the 'iCueStoreManager' registry settings, you must configure some registry entries to enable ADS, see Figure 10.

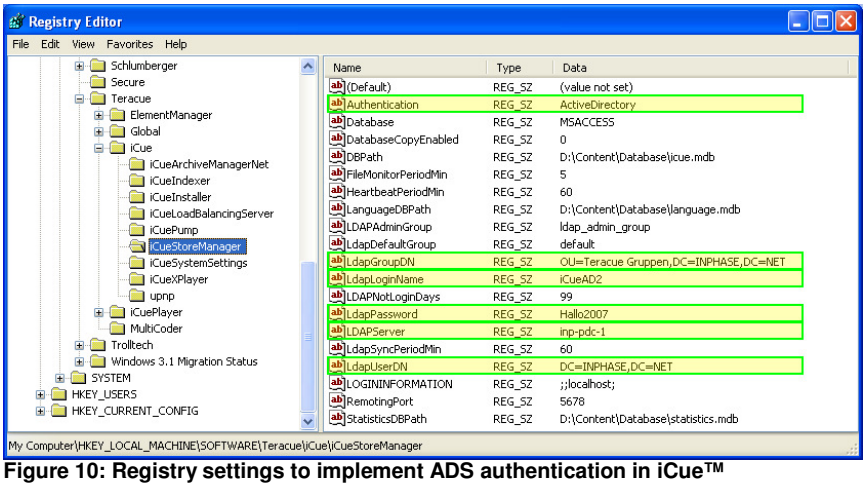


Figure 10: Registry settings to implement ADS authentication in iCue™

Please change the values of the following registry entries, see Table 1.

Registry entries:	Value:
Authentication:	Please set the authentication value to 'ActiveDirectory'. The value 'ActiveDirectory' enables the ADS authentication in iCue™. The default value of this registry entry is 'iCue'.
LDAPServer:	The value of this entry is the name of your domain controller server. For example, in Figure 10 the name of the domain controller server is 'inp-pdc-1'.
LdapLoginName:	Specifies the username of an ADS user. Please create a new ADS user with guest authorizations, because the password of this user is shown as plain text. The ADS user 'Anonymous' is not supported in iCue™. Enter the username into the 'LdapLoginName' entry. For example, in Figure 10 the username of an ADS user is 'iCueAD2'.
LdapPassword:	Specifies the password of an ADS user. Please create a new ADS user with guest authorizations, because the password is shown as plain text. The user 'Anonymous' is not supported in iCue. Enter the password into the 'LdapPassword' entry. In Figure 10 the password of the user 'iCueAD2' is 'Hallo2007' for example.
LdapUserDN:	Specifies the domain name of your ADS server. This value must be asked for. To ask for your domain name, please use the java tool 'LDAP Browser/Editor'. This free java tool requires an installed java version 1.2.2 or greater on your system and it can be downloaded by http://www-unix.mcs.anl.gov/~gawor/ldap/. Please use the LDAP Browser to ask for your domain name and enter the domain name into the 'LdapUserDN' entry. How you ask for the domain name with the 'LDAP Browser/Editor' is described in chapter 3.1.1. For example, in Figure 10 the domain name of the ADS server is 'DC=INPHASE,DC=NET'.
LdapGroupDN:	Specifies the organisational unit. This value must be asked for. But at first your domain administrator must create a domain group, which contains following iCue™ authorization groups: ▪ Video Administrators ▪ Video Editors ▪ Video Guests Furthermore the domain administrator must integrate the ADS users into this domain groups. To ask for your organisational unit, please use the java tool 'LDAP Browser/Editor'. This free java tool requires an installed java version 1.2.2 or greater on your system and it can be downloaded by http://www-unix.mcs.anl.gov/~gawor/ldap/. Enter the organisational unit including your domain name into the 'LdapGroupDN' entry. How you ask for the organisational unit with the 'LDAP Browser/Editor' is described in chapter 3.1.2. For example, in Figure 10 the 'LdapGroupDN' value is 'OU=Teracue Gruppen,DC=INPHASE,DC=NET'.

Table 1: Description of the 'iCueStoreManager' registry settings to enable ADS

After you have set all registry settings, please start the iCue™ service in the Configuration Manager.

3.1.1 Ask for the Domain Name

To ask for your domain name, please use the java tool 'LDAP Browser/Editor'. This free java tool requires an installed java version 1.2.2 or greater on your system and it can be downloaded by http://www-unix.mcs.anl.gov/~gawor/ldap/. Please go to the 'ldapbrowser' folder, which you have downloaded, and execute the 'lbe.jar' file. It opens the java tool 'LDAB Browser/Editor', see Figure 11.

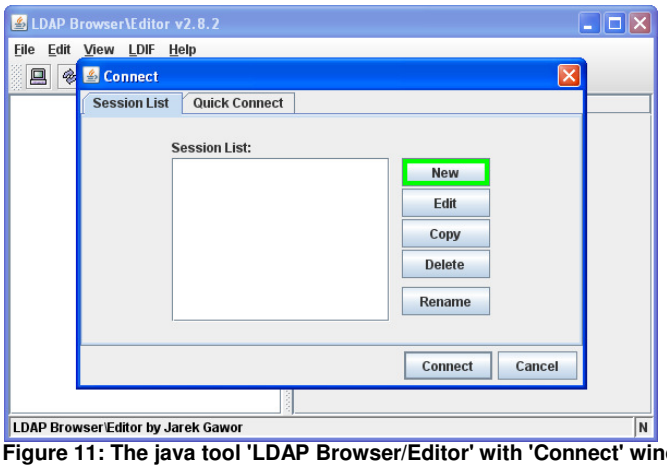


Figure 11: The java tool 'LDAP Browser/Editor' with 'Connect' window

It also opens the 'Connect' window of the LDAP Browser/Editor, please click in the 'Connect' window on the 'New' button to configure a new session, see Figure 11. After you have clicked the 'New' button, it opens the 'New Session' window, see Figure 12. Please type a session name in the 'Name' tab of the 'New Session' window. Afterwards switch to the 'Connection' tab, to set the connection parameters.

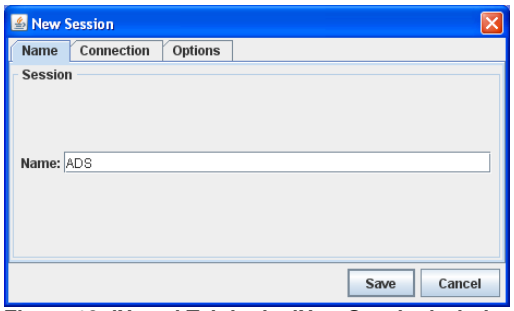


Figure 12: 'Name' Tab in the 'New Session' window

To ask for the domain name of your ADS server, please enter in the 'Host' text field of the 'Connection' tab the name or the IP-address of your ADS server and click the 'Fetch DNs' button. The whole domain name of your ADS server will be shown now in the text field 'Base DN'. Please copy the whole 'Base DN' entry and paste it into the 'LdapUserDN' registry entry of your iCue™ Streaming Server, see also chapter 3.1 on page 19.

Furthermore please uncheck the check-box 'Anonymous bind' and enter in the text fields 'User DN' and 'Password' the username and the corresponding password of an ADS user of your ADS server.

Please click the 'Save' button to save the settings of your session configurations. The 'New Session' window will be closed and a 'Session List' entry will be created. See Figure 14. Now you can open the connection between your client and your ADS server, to ask for the organisational unit, see chapter 3.1.2.

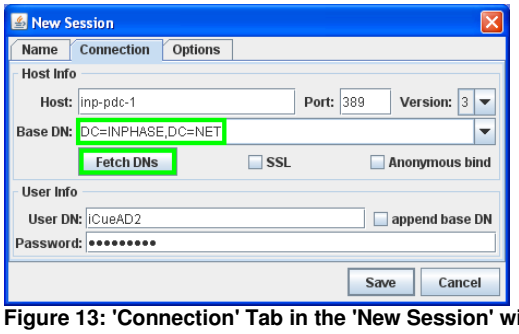


Figure 13: 'Connection' Tab in the 'New Session' window

Buttons, Text- / Check-Boxes:	Description:
Host:	Specifies the name or the IP-address of the domain controller server. Please type in the 'Host' text field the name or the IP-address of your ADS server. For example, in Figure 13 the name of the domain controller server is 'inp-pdc-1'.
Port:	Specifies the LDAP port. The default port number is 389. This port number was assigned by IANA (Internet Assigned Numbers Authority). We recommend do not changing this port number.
Version:	Specifies the version of the used LDAP protocol. We recommend do not changing the version number.
Base DN:	Specifies the domain name of your ADS server. To get the domain name of your ADS server, please click only the 'Fetch DNs' button. Afterwards copy the whole 'Base DN' entry and paste it into the 'LdapUserDN' registry entry of your iCue™ Streaming Server, see also chapter 3.1 on page 19.
Fetch DNs:	Fetches the domain name of your ADS server.
SSL:	Enables/Disables an encrypting protocol for SSL connection (Secure Socket Layer).
Anonymous bind:	Enables/Disables the usage of the ADS user 'Anonymous' to log on to the ADS server.
User DN:	Specifies the username of an ADS user to log on to the ADS server. This text field is available, when the check-box 'Anonymous bind' is disabled. Please type in the 'User DN' text field the username of an ADS user. For example, in Figure 13 the username of an ADS user of the 'inp-pdc-1' server is 'iCueAD2'.
Append base DN:	Enables/Disables the appending of domain name.
Password:	Specifies the password of the ADS user to log on to the ADS server. This text field is available, when the check-box 'Anonymous bind' is disabled. Please type in this text field the password of the ADS user.
Save:	Saves the settings of your session configurations and closes the 'New Session' window.
Cancel:	Closes the 'New Session' window without saving your settings.

Table 2: Description of the 'Connection' tab in the 'New Session' window

3.1.2 Ask for the organisational Unit

To ask for your organisational unit, please use the java tool 'LDAP Browser/Editor'. This free java tool requires an installed java version 1.2.2 or greater on your system and it can be downloaded by http://www-unix.mcs.anl.gov/~gawor/ldap/.

But before you can ask for the organisational unit, your domain administrator must create a domain group on your ADS server, which contains following iCue™ authorization groups, see also Figure 15:

- Video Administrators
- Video Editors
- Video Guests

Furthermore the domain administrator must integrate the ADS users into these domain groups.

To ask for the organisational unit of your ADS server, please go to the 'ldapbrowser' folder, which you have downloaded, and execute the 'lbe.jar' file. It opens the java tool 'LDAB Browser/Editor', see Figure 11. If up to now no session entry was created in the session list of the 'Connect' window, please create a session entry now. To create a session entry, see also the chapter 3.1.1.
Please open the connection to the ADS server by selecting the session entry and by clicking the 'Connect' button, see Figure 14.

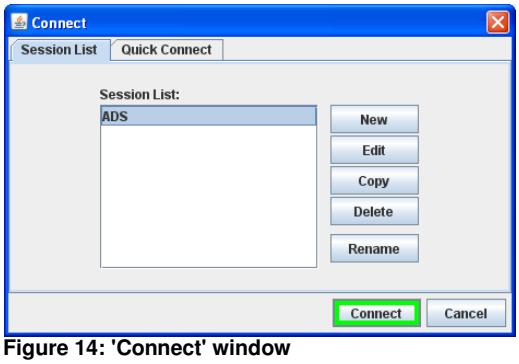


Figure 14: 'Connect' window

After the connection to your ADS server is open, the LDAP Browser/Editor shows the domain groups in a data tree. Please browse now to the domain group which your domain administrator has created, see Figure 15. For example, in Figure 15 the domain group is 'OU=Teracue Gruppen'. Please copy the whole 'distinguishedName' entry (see Figure 15), which contains the organisational unit including the domain name, and paste it into the 'LdapGroupDN' registry entry of your iCue™ Streaming Server, see also chapter 3.1 on page 19.

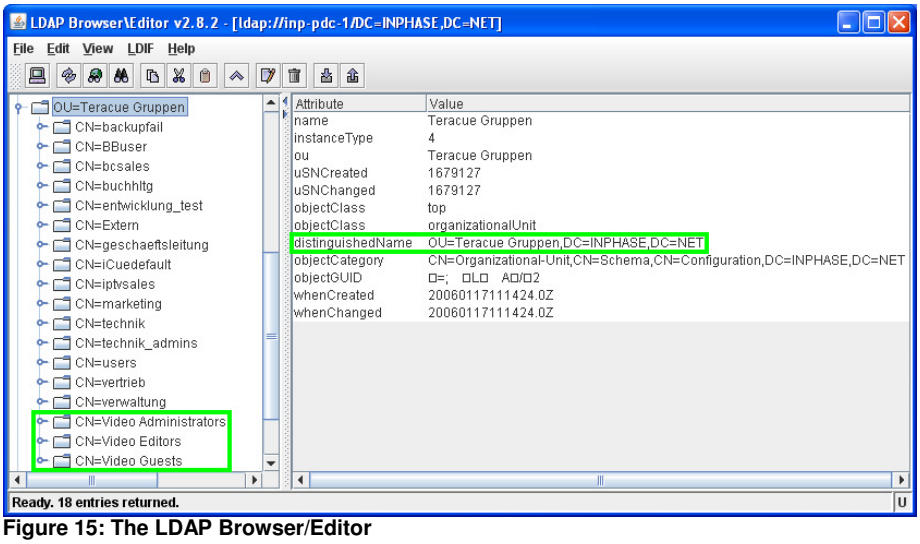


Figure 15: The LDAP Browser/Editor

3.2 iCue™ Database settings

After you have set all iCue™ registry settings and after you have started all iCue™ services, basically the ADS authentication is implemented in iCue™. But before you can use the ADS authentication within iCue™ in its entirety, you must configure the permissions of the ADS user who is the iCue™ administrator. You set the permissions of this ADS user by configuring the iCue™ database.

At first you must create the ADS user who is the iCue™ administrator into iCue™. Therefor open the iCue™ webpage and log on with the username/password of the ADS user who is the iCue™ administrator. As the permissions of the ADS user are not set, the iCue™ webpage has only the menu item 'Global Channels'. Due to your log on, iCue™ creates a new database entry for this ADS user.

As next you must configure the iCue™ database, please log off your ADS-user at the iCue™ webpage. Furthermore stop all iCue™ services by the iCue™ Configuration Manager on the iCue™ Streaming Server. Afterwards please go to the drive, which includes the **'Content'** folder, and open the **'Database'** folder. For example the 'Content' folder is stored on the C-drive, therefore the iCue™ database is stored at the path C:\Content\Database of the iCue™ Streaming Server. The 'Database' folder contains several databases, but you must only configure the database **'icue.mdb'**.

Please open the database 'icue.mdb'. If you have opened the 'icue.mdb', some iCue™ tables will be listed. The following iCue™ database tables are important for you, but you must only configure one of these database tables, see also Figure 16:

- voduser
- usergroup
- user_usergroup
- grouppermission
- usergroup_permission **.!. Only this database table must be configured.**

.!. Configure ONLY the iCue™ database table 'usergroup_permission'. All other tables are just for your information.

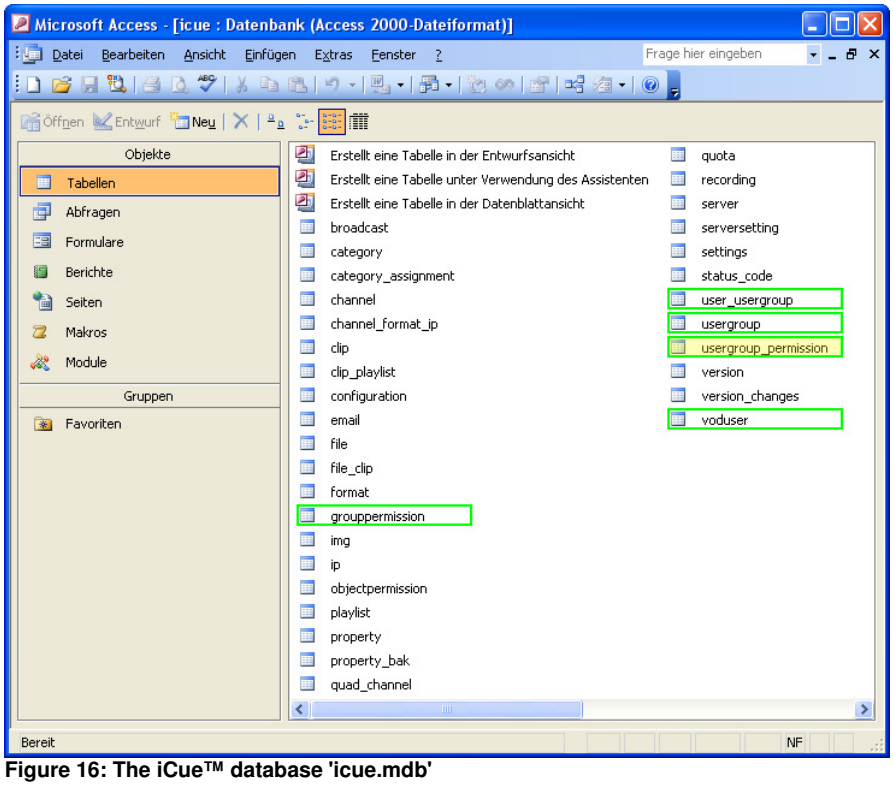
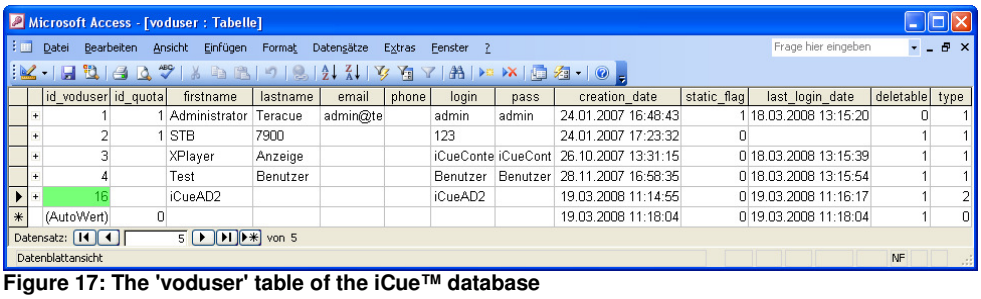


Figure 16: The iCue™ database 'icue.mdb'

3.2.1 'voduser' Table of the iCue™ database

If you have logged on with the username/password of the ADS user who is the iCue™ administrator, iCue™ creates a new database entry for this ADS user. For example, in Figure 17 an ADS user called 'iCueAD2' has logged on the iCue™ webpage and iCue™ automatically creates a new entry in the 'voduser' table with the 'id_voduser' ID 16.

.!. Do not change any entry in the 'voduser' database table. This chapter is just for your information. You must not change anything in this table.


Microsoft Access - [voduser : Tabelle]
Datei Bearbeiten Ansicht Einfügen Format Datensätze Extras Fenster ?
Frage hier eingeben

id_voduser	id_quota	firstname	lastname	email	phone	login	pass	creation_date	static_flag	last_login_date	deletable	type
1	1	Administrator	Teracue	admin@te		admin	admin	24.01.2007 16:48:43	1	18.03.2008 13:15:20	0	1
2	1	STB	7900			123		24.01.2007 17:23:32	0		1	1
3		XPlayer	Anzeige			iCueConte	iCueCont	26.10.2007 13:31:15	0	18.03.2008 13:15:39	1	1
4		Test	Benutzer			Benutzer	Benutzer	28.11.2007 16:58:35	0	18.03.2008 13:15:54	1	1
16		iCueAD2				iCueAD2		19.03.2008 11:14:55	0	19.03.2008 11:16:17	1	2
(AutoWert)	0							19.03.2008 11:18:04	0	19.03.2008 11:18:04	1	0

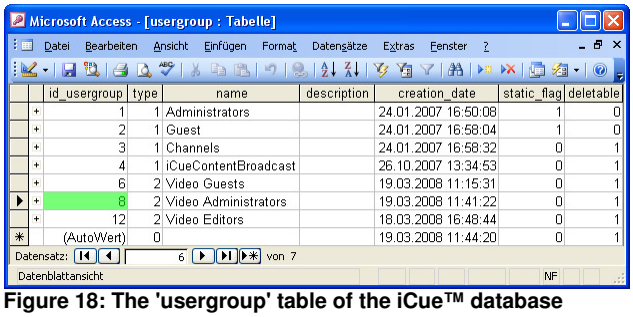
Datensatz: 5 von 5
Datenblattansicht NF

Figure 17: The 'voduser' table of the iCue™ database

3.2.2 'usergroup' Table of the iCue™ database

After you have logged on the iCue™ webpage with an ADS user, iCue™ also automatically creates in the 'usergroup' table a new entry with the user group in which the ADS user is a member. For example, in Figure 18 the user group 'Video Administrators' was created, because the ADS user 'iCueAD2' is a member of this user group. For information about the user group, see also chapter 3.1.2 on page 23. Please keep the **'id_usergroup'** of the **'Video Administrators'** in your mind or make a memo with your 'id_usergroup', because you need this ID to configure the database table 'usergroup_permission'. In case of Figure 18 the 'id_usergroup' is 8.

.!. Do not change any entry in the 'usergroup' database table. This chapter is just for your information. You must not change anything in this table.



id_usergroup	type	name	description	creation_date	static_flag	deletable
1	1	Administrators		24.01.2007 16:50:08	1	0
2	1	Guest		24.01.2007 16:58:04	1	0
3	1	Channels		24.01.2007 16:58:32	0	1
4	1	iCueContentBroadcast		26.10.2007 13:34:53	0	1
6	2	Video Guests		19.03.2008 11:15:31	0	1
8	2	Video Administrators		19.03.2008 11:41:22	0	1
12	2	Video Editors		18.03.2008 16:48:44	0	1
(AutoWert)	0			19.03.2008 11:44:20	0	1

Datensatz: 6 von 7
Datenblattansicht NF

Figure 18: The 'usergroup' table of the iCue™ database

3.2.3 'user_usergroup' Table of the iCue™ database

iCue™ automatically creates a further entry in the 'user_usergroup' table, after an ADS user has logged on the iCue™ webpage. This table links the ADS-user to the corresponding user group in which the ADS user is a member. In case of Figure 19 the ADS user 'iCueAD2' with the 'id_voduser' 16 is linked with the user group 'Video Administrators' which has the 'id_usergroup' 8.

.!. Do not change any entry in the 'user_usergroup' database table. This chapter is just for your information. You must not change anything in this table.

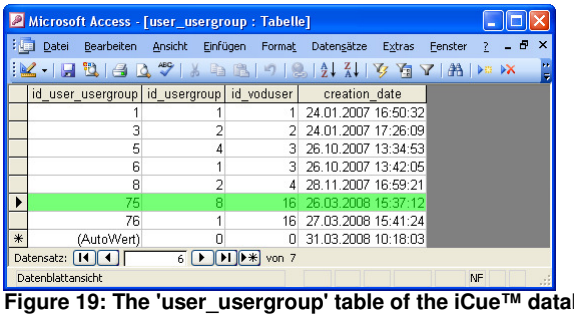

Microsoft Access - [user_usergroup : Tabelle]
Datei Bearbeiten Ansicht Einfügen Format Datensätze Extras Fenster
id_user_usergroup id_usergroup id_voduser creation_date
1 1 1 24.01.2007 16:50:32
3 2 2 24.01.2007 17:26:09
5 4 3 26.10.2007 13:34:53
6 1 3 26.10.2007 13:42:05
8 2 4 28.11.2007 16:59:21
75 8 16 26.03.2008 15:37:12
76 1 16 27.03.2008 15:41:24
(AutoWert) 0 0 31.03.2008 10:18:03
Datensatz: 6 von 7
Datenblattansicht
NF

Figure 19: The 'user_usergroup' table of the iCue™ database

3.2.4 'grouppermission' Table of the iCue™ database

The database table 'grouppermission' has predefined permissions, see Figure 20. It is not possible to extend the permissions. As the ADS user shall have administrator permissions, please make a memo of the 'id_grouppermission' of the group permission 'ADMIN', because you need this ID to configure the database table 'usergroup_permission'. The **'id_grouppermission'** of the group permission '**ADMIN**' is **11**.

.!. Do not change any entry in the 'grouppermission' database table. This chapter is just for your information. You must not change anything in this table.

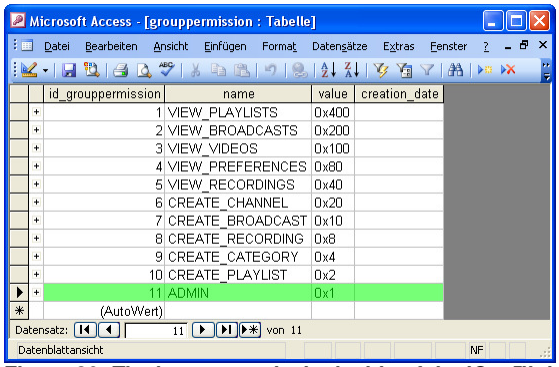


Figure 20: The 'grouppermission' table of the iCue™ database

3.2.5 'usergroup_permission' Table of the iCue™ database

Before you can use the ADS authentication within iCue™ in its entirety, you must configure the permissions of the ADS user who is the iCue™ administrator. Therefor you must only edit the iCue™ database table 'usergroup_permissions'. To set the permissions of your ADS user, you must know the following IDs:

- 'id_usergroup' in which your ADS user is a member (see chapter 3.2.2 on page 25)
- 'id_grouppermission' of the group permission 'ADMIN' (see chapter 3.2.4 on page 26)

In order that your ADS user gets administrator permissions in iCue™, please create a new entry in the 'usergroup_permissions' database table. As next, enter in the new entry field of the column 'id_usergroup' the ID of the user group in which your ADS user is a member. Furthermore, please enter in the new entry field of the column 'id_grouppermission' the ID of the group permission 'ADMIN'. Please store your settings by saving the iCue™ database and afterwards close the database. For example, Figure 21 defines that the user group 'Video Administrators', which has the ID 8, shall have administrator permissions. For your information: In the example the ADS user 'iCueAD2' is a member of the user group 'Video Administrators'.

In a final step, please start all iCue™ services by using the iCue™ Configuration Manager on the iCue™ Streaming Server. See Figure 22.

From this moment on, your ADS user has administrator permissions and all further permission configurations can be set by using the iCue™ webpage now.

.!. Configure ONLY the iCue™ database table 'usergroup_permission'. All other tables are just for your information.

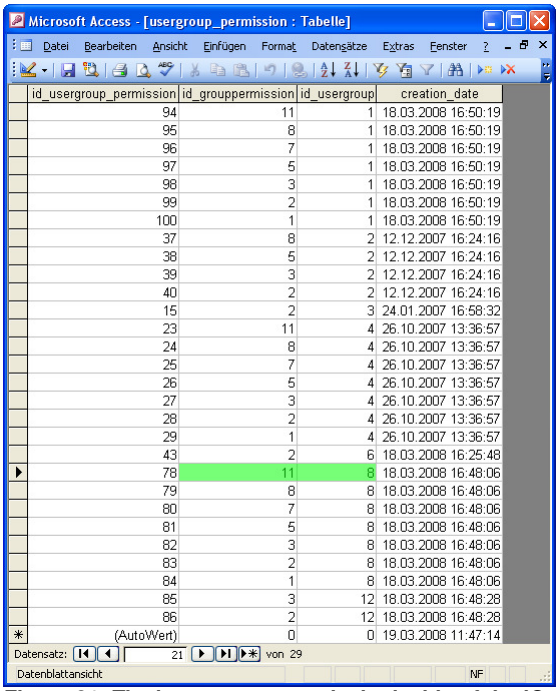


Figure 21: The 'usergroup_permission' table of the iCue™ database

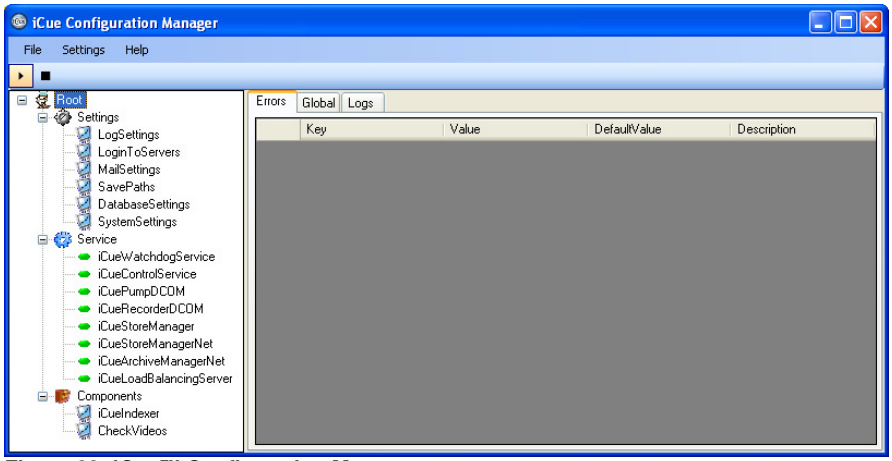


Figure 22: iCue™ Configuration Manager

4. iCue™ Server Installation

The following section describes the iCue™ Server software installation. This installation process is the same for Windows Server 2008 32bit and Windows Server 2008 64bit systems.

4.1 iCue Installer

Please execute the setup file of the **iCueTM Server** software. It opens the install assistant for iCue (see Figure 23). Click **'Next>'** to continue.

1) **Setup start screen**

Setup - iCue
Welcome to the iCue Setup Wizard
This will install iCue 4.3.72 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
iCue
Next >
Cancel

Figure 23: Setup start screen

Click **'Next>'** to continue.

2) **System name and content folder**

As next enter

- iCueSystem Name and
- iCue Content folder
  The iCue content is for example the recorded or imported video clips, the iCue images, the database and so on. The default value is 'C:\Content\'. But if you have several local drives than drive C in your system, please change the drive. Please choose the drive for the iCue content, which has the largest free space. For example 'T:\Content\'.

.!. If another local drive exists than drive C, please use for the iCue content the local drive, which has the largest free space.

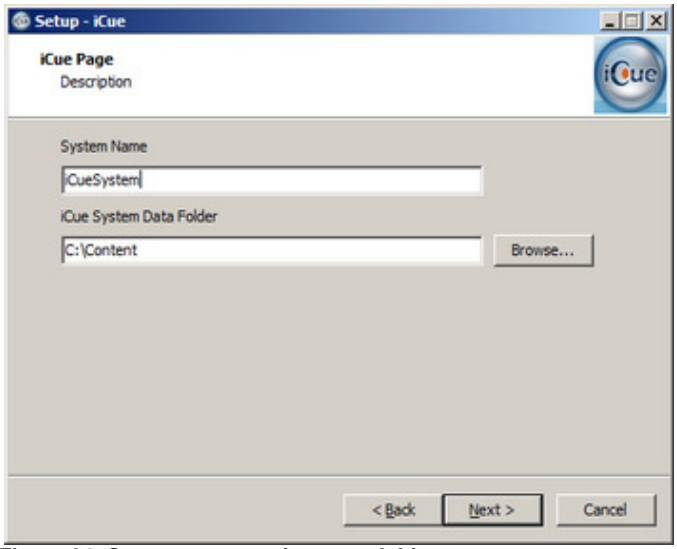


Figure 24: System name and content folder

Click '**Next>**' to continue.

3) **Destination location**

As next enter the path of the iCue binaries files location. These binary files are elementary components of iCue. The default value of the storage path is '**C:\iCue**\'. It is recommended not changing this path.

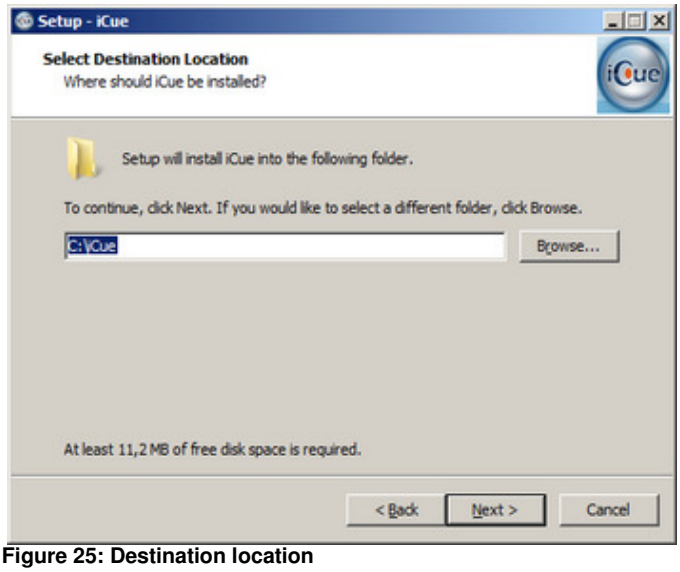

Setup - iCue
Select Destination Location
Where should iCue be installed?
Setup will install iCue into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\iCue
Browse...
At least 11,2 MB of free disk space is required.
< Back
Next >
Cancel

Figure 25: Destination location

Click '**Next>**' to continue.

4) **Select Components**

As next you can select which iCue components should be installed:

- iCueWeb
  Configuration of iCue via web browser
  It is strongly recommended to install this component
- iCueTV
  Selection of channels via web browser.
  It is recommended to install this component
- Amino
  Web browser interface for Amino STB is available. Just necessary if Amino STB's are used and iCue GUI should be shown on Amino STB. Furthermore a open web interface on an Amino STB allows to send some special java script commands (e.g. for muting, controlling volume etc.) via the Teracue software ElementManager.
- EMCAmino
  No special web browser interface for Amino STB is available (just a black web page), but as described above the open web browser in Amino enables special control functions for Element Manager (e.g. muting, volume control). Just necessary if Amino STB's are used.
- STB7900HD
  Web browser interface for STB-7900HD is available. Just necessary if STB's 7900 are used.

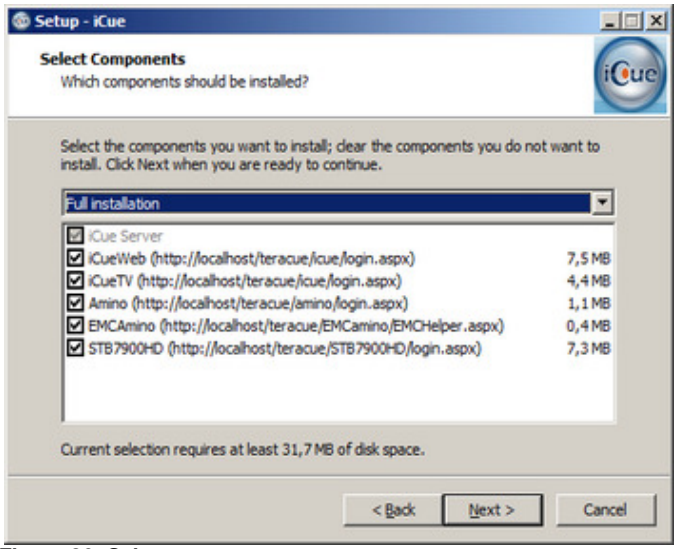

Setup - iCue
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
Full installation
iCue Server
iCueWeb (http://localhost/teracue/icue/login.aspx) 7,5 MB
iCueTV (http://localhost/teracue/icue/login.aspx) 4,4 MB
Amino (http://localhost/teracue/amino/login.aspx) 1,1 MB
EMCAmino (http://localhost/teracue/EMCamino/EMCHelper.aspx) 0,4 MB
STB7900HD (http://localhost/teracue/STB7900HD/login.aspx) 7,3 MB
Current selection requires at least 31,7 MB of disk space.
< Back
Next >
Cancel

Figure 26: Select components

Click '**Next>**' to continue.

5) **Start Menu Folder**
Determine the Windows Start location of iCue.

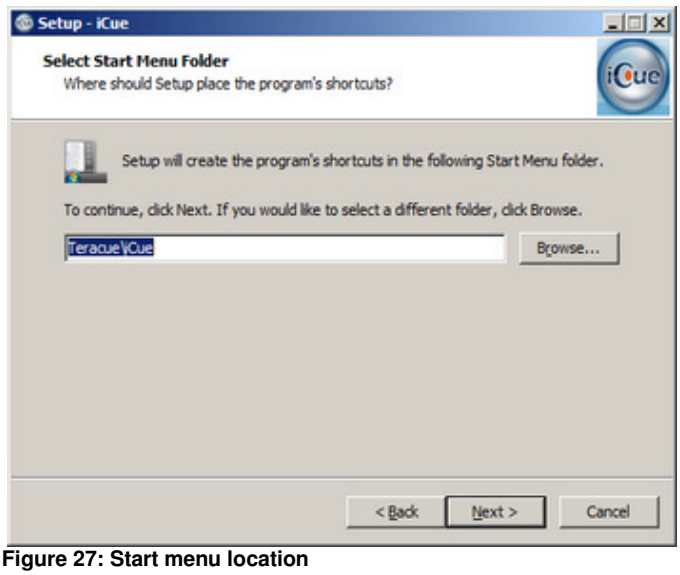

Setup - iCue
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
Teracue\iCue
Browse...
< Back
Next >
Cancel

Figure 27: Start menu location

Click '**Next>**' to continue.

6) **Ready to install**

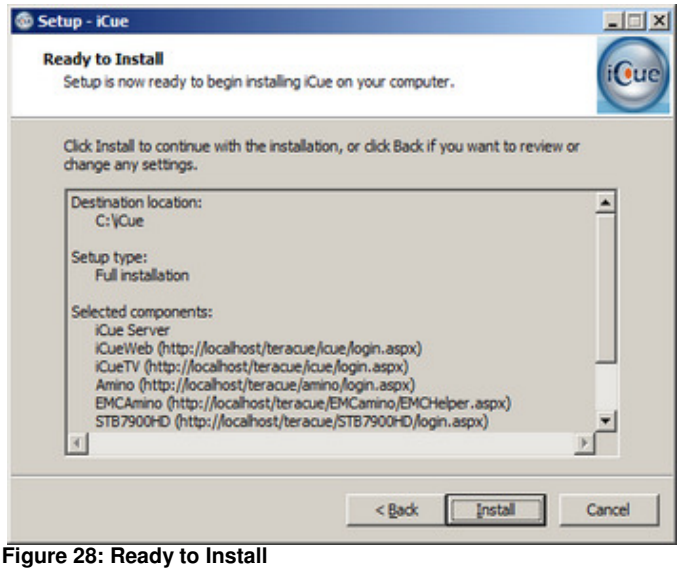


Figure 28: Ready to Install

Click '**Install**' to start installation.

7) **Installation**

By launching iCue Configuration Manager you directly configure iCue services after setup.

Setup - iCue
Completing the iCue Setup Wizard
Setup has finished installing iCue on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch iCueConfigurationManager
iCue
Finish

Figure 29: Completing iCue Setup

Click '**Finish**' to end installation.

4.2 Register Services with the iCue Configuration Manager

After the successful iCue Server installation, iCue must be configured. For this configuration the iCue installer automatically opens after the installation the **'iCue Configuration Manager'** (see Figure 30). But you can also open the **'iCue Configuration Manager'** at a later stage by clicking on the **'Configuration Manager'** shortcut on the desktop or by clicking on the **'iCue.ConfigurationManager.exe'** in **C:\iCue**.

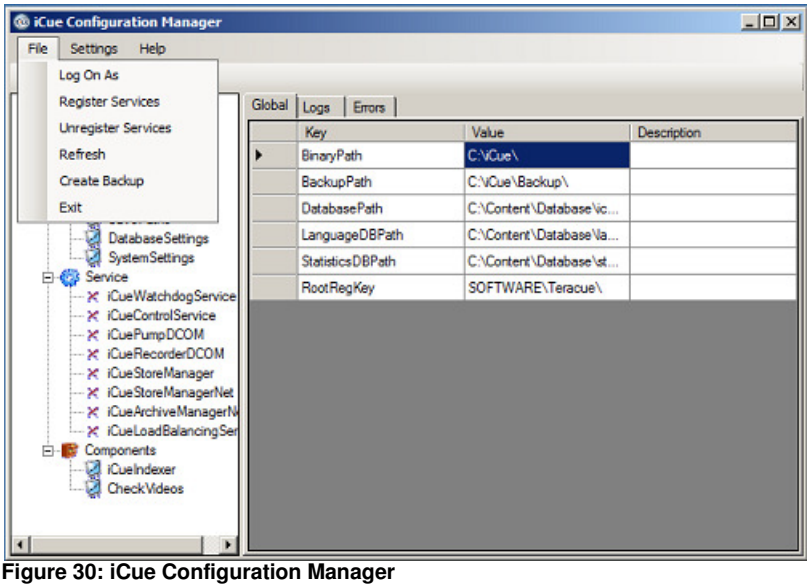


Figure 30: iCue Configuration Manager

Register the iCue Services via menu item **>File >Register Services**

If it is necessary to start all services with a different account then do the following:

- Click in the 'Register' window the **'This Account'** radio button and enter the user name and password of the corresponding service accounts in the text fields below.

.!. To register services, you must have administrator permissions. If the administrator account is used, the authorisation 'log on as service' has been added to the administrator account.

- Please click **'OK'** to confirm your settings.

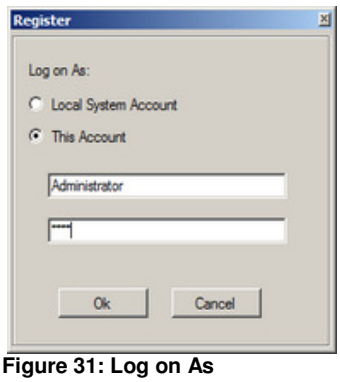


Figure 31: Log on As

Finally please step to menu item **>File > Register Services** to start registration.

4.3 Registering iCue Server

At ‚Register Services' in iCue configuration manager, the 'Register Teracue product' window opens.

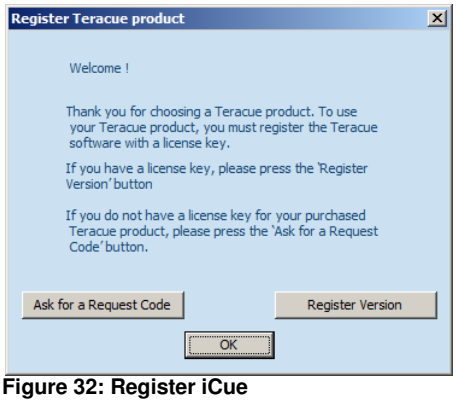

Register Teracue product
Welcome !
Thank you for choosing a Teracue product. To use your Teracue product, you must register the Teracue software with a license key.
If you have a license key, please press the 'Register Version' button
If you do not have a license key for your purchased Teracue product, please press the 'Ask for a Request Code' button.
Ask for a Request Code
Register Version
OK

Figure 32: Register iCue

After you pressed **'Ask for a Request Code'**, the 'New license request' window will appear. It displays your request code, which is needed to obtain a license key.

Please right-click on the blue marked request code and copy it.
Paste it into an email along with your name and company details and send it to: support@teracue.com
You will shortly receive an answer supplying you with your license key from our support team.

Note:
You can get two kinds of license:
a) Full license:
A full license is temporally unlimited. For identification of your full license please tell the support team the **serial number** of your iCue system. Usually you can find the the **serial number** on a sticker on the DVD case.
b) Demo license:
A demo is temporally limited. Usually you get 30 days demo license for testing purpose.

After you have received a license key, you can continue with the registration of your **iCueTM Server** software. If your 'Register Teracue product' dialog is not open, you can open it via menu item **>Help >Registration**. Then please press button **Register Version** button to type in your license code:

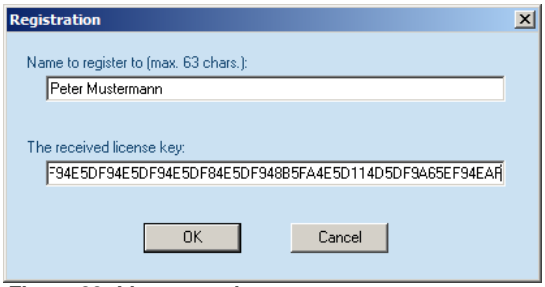


Figure 33: License code

Please enter:
- name and
- license key and confirm with OK.

.!. If you have a demo license, please renew your iCue™ Server and iCue™ Player demo licenses before they run out.

4.4 Network Configuration

You must select the network card and IP-address of the server, which the **iCue™** Software will use. This is very important, if you have several network cards in your system.

Please step in iCue Configuration Manager to menu item >**Settings** >**Network Card**' to open dialog below Select your desired **network card** and select the corresponding **IP-address**. Confirm your choice with **OK**.

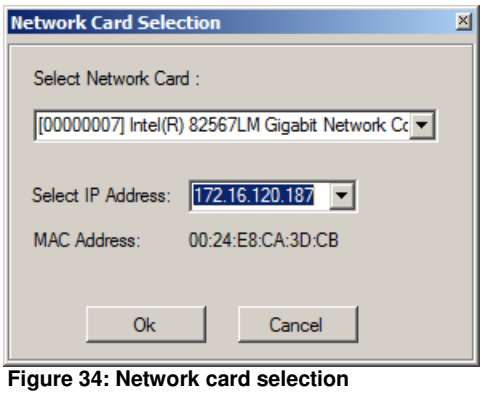


Figure 34: Network card selection

Next you must refresh the iCue configuration manager via menu item **>File >Refresh**. If you click afterwards in the data tree on 'System Settings', the 'Registry Settings' Tab must show the new and correct IP-address of the chosen network card. Now you can start iCue services.

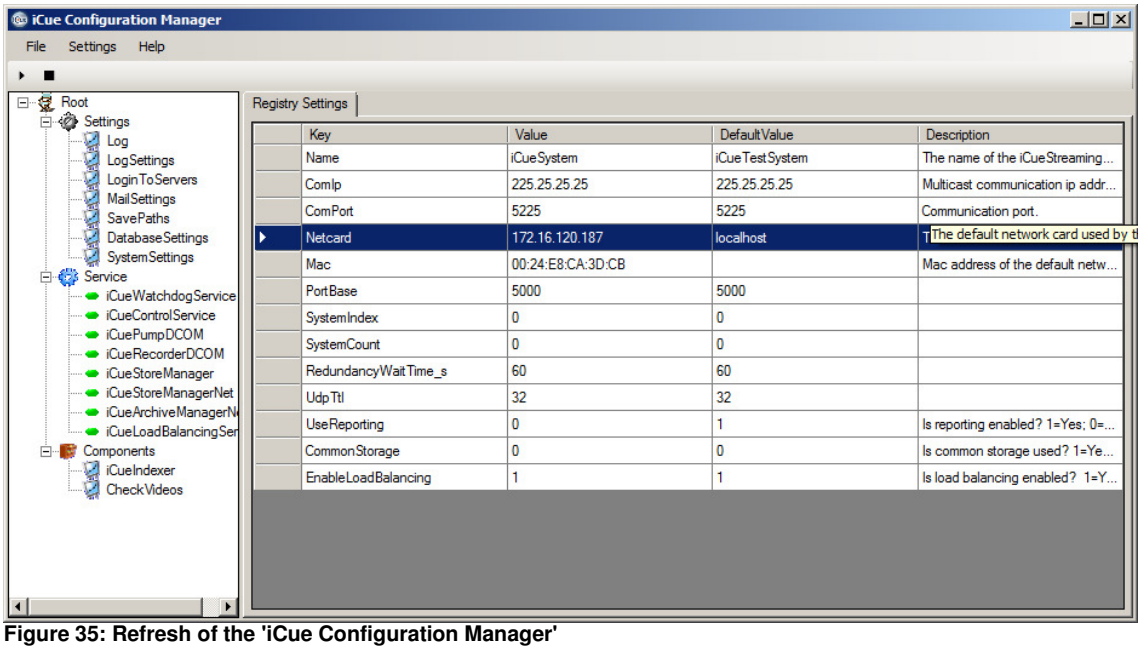


Figure 35: Refresh of the 'iCue Configuration Manager'

4.5 Start Services with the iCue Configuration Manager

To start iCue services please click the **'Play'** button in the **'iCue Configuration Manager'**. If an iCue service is started, the service will be marked green and in the **'Errors'** tab the Error messages disappears.

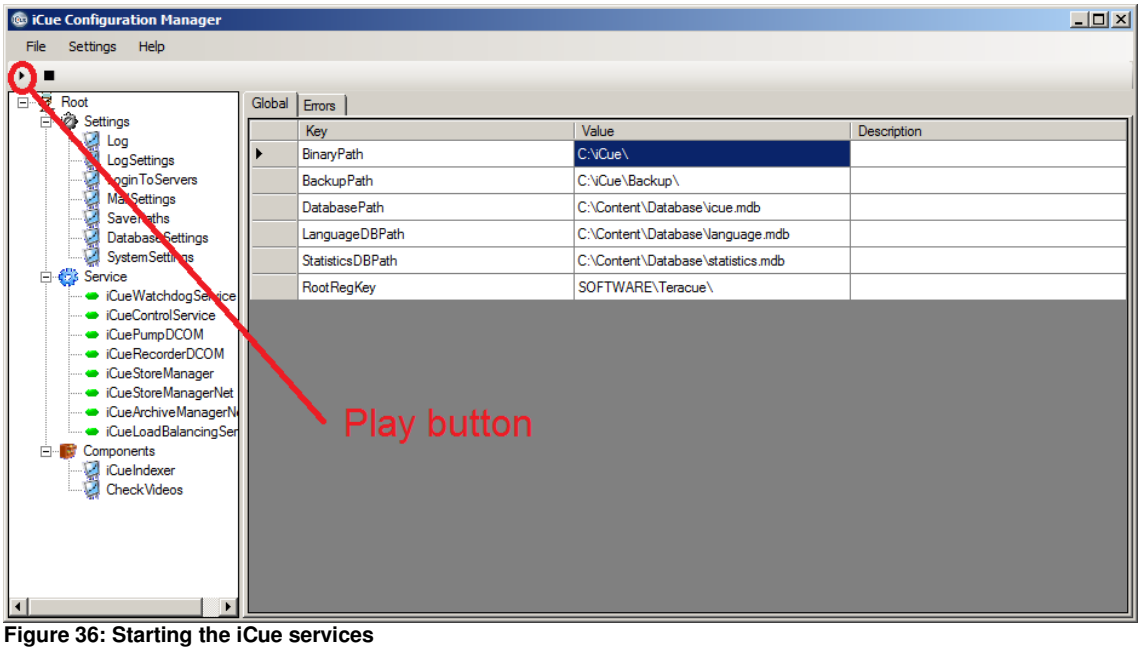


Figure 36: Starting the iCue services

4.6 Update of the iCue Database

Please go to the 'UpdateDatabase' item in the data tree and click at the play button, to update all iCue databases. See Figure 37. When you have updated your iCue databases, you can be sure that all databases have all needed information. Please make an update of theses iCue databases after the installation and after every iCue Server update.

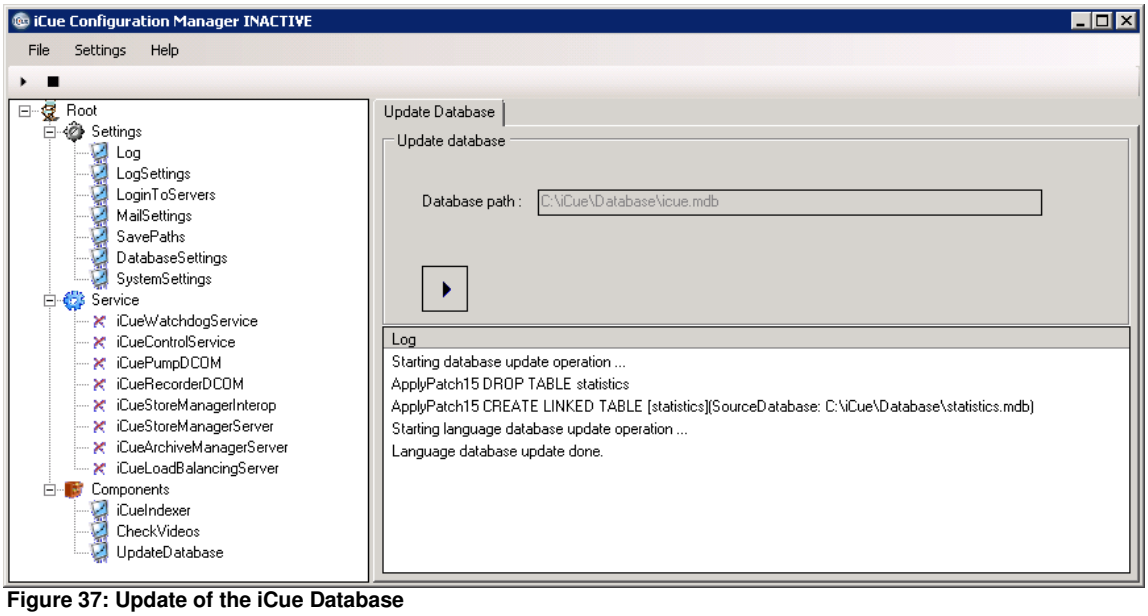


Figure 37: Update of the iCue Database

5. Configuration of Internet Information Service

The iCue server acts as a web server. For control via web browser the iCue Server supports especially adapted web sites for:

- **iCue**
  For Administrators.
  User interface for administration and configuration of iCue.
- **iCueTV**
  For end users.
  User interface to select TV channels via web browser on computer.
- **Amino**
  For end users.
  User interface to select TV channels via web browser of Amino STB's.
- **Amino EMC**
  For ElementManger (remote control software).
  Blank web page for Amino STB. This web page is not for user control, but to enable special remote control functions as volume control or muting.
- **STB7900**
  For end users.
  User interface to select TV channels via web browser of Amino STB's.

Which websites are installed is decided at iCue Server installation (see chapter 4.1).

5.1 Usage of 'index.htm' File

With the file **index.htm** you can determine if the Teracue web site is shown automatically when the URL is typed in at web browser. Otherwise the whole Inetpub path must be entered.
To prevent conflict with other webserver sites the file **index.htm** is not(!) installed automatically. A template of the file **index.htm** is located on

- Teracue DVD
- The support area of the Teracue website: http://www.teracue.com

The file **index.htm** must be copied into the path \\inetpub\wwwroot.

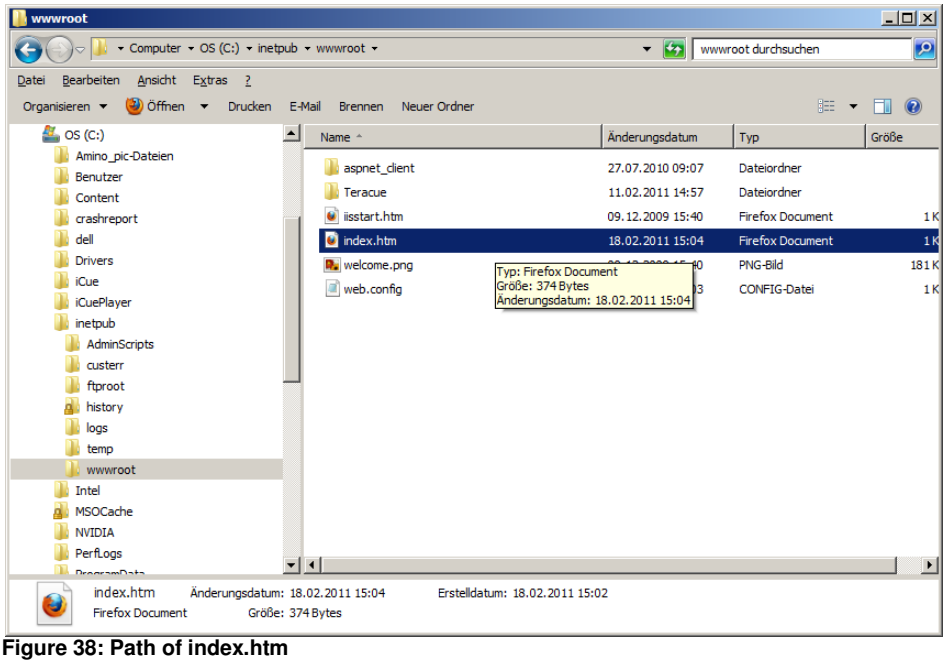


Figure 38: Path of index.htm

Example:

1) URL to enter in web browser without file index.htm
http:/<IP-address_of_your_iCue-system>/teracue/icue/login.aspx
URL to enter in web browser with file index.htm (with example file below)
http:/<IP-address_of_your_iCue-system>

Example of file index.aspx

```
<%@ page language="C#" autoeventwireup="true" inherits="Index, App_Web_obb6tdmh"
stylesheettheme="Default" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml" >
<head runat="server">
    <title>iCue Streaming Server</title>
</head>

<script language="javascript" type="text/javascript">

    var language = "en";

    //IE stores the language in the navigator.userLanguage property
    //Mozilla stores it in the navigator.language property
    if(navigator.userLanguage)
                language = navigator.userLanguage.substr(0,2);
        else
                language = navigator.language.substr(0,2);

        document.location.href='Login.aspx?Language=' + language;
</script>

<body>
    <form id="form1" runat="server">
    <div>

    </div>
    </form>
</body>
</html>
```

6. Redundancy

This chapter describes the active/active redundancy as also mentioned in the Teracue white paper.

Generally Redundancy increases the operating safety. But 100-percent redundancy will never exist, because a redundant system can also fail. For 100-percent redundancy each redundant system must have another redundant system and this is unrealizable.

Redundancy in this manual means:

- Two Server run at the same time
- One Storage unit (NAS)
- In normal operation both server works simultaneously (one as **master** and one as **slave**). The load balancing server of the master decides which server overtakes a task (recording, streaming etc.)
- In case of fail of the master server the slave server becomes the master server

6.1 First Steps

2) **Independent test**
Test both iCue Systems separately before installing Redundancy.

3) **Storage**
A **Redundant iCue System** consists of two single iCue Systems (i.e. iCueSystem PC). The whole **Redundant iCue System** have a common storage. A common storage consists of one or multiple storage paths.
Therefore all storage paths must be full accessible (read, write, delete) by all iCueSystem PC's of the **Redundant iCueSystem**. Please check with Windows if:

- Same path
- Same User
- Same Password

Please check this with UNC (= **u**niversal **n**ame **c**onvention) paths e.g. do not use drive letters.
Example for UNC path:
\\172.16.118.30\drive

4) **Different Account**
A **Redundant iCue System** is a typical application example for starting the services on a different account. This is necessary since services in network cannot run on a local account.
The **log on a different account** can be done in iCueConfigurationManager at menu item **>File >Log On As** (for example see also chapter 4.2)

5) **Database**
Each iCue System has its own database which must be located on a local drive (not on common storage). The database are synchronized according to the data base synchronization time.

6.2 iCue Configuration Manager Settings

1) Configure Save Path
Path: Settings > Save Paths
Meaning: Path which is available for both iCueSystems all the time
Note:
Try if access is possible (at missing access writing is red)

2) Configure Login To Servers
Path: Settings > LoginToServers
Meaning: Access data for every save path
Note:
If access data changes this configuration must be changed, too
Note 2:
Login must be assigned to path which needs a share (not any sub directory)

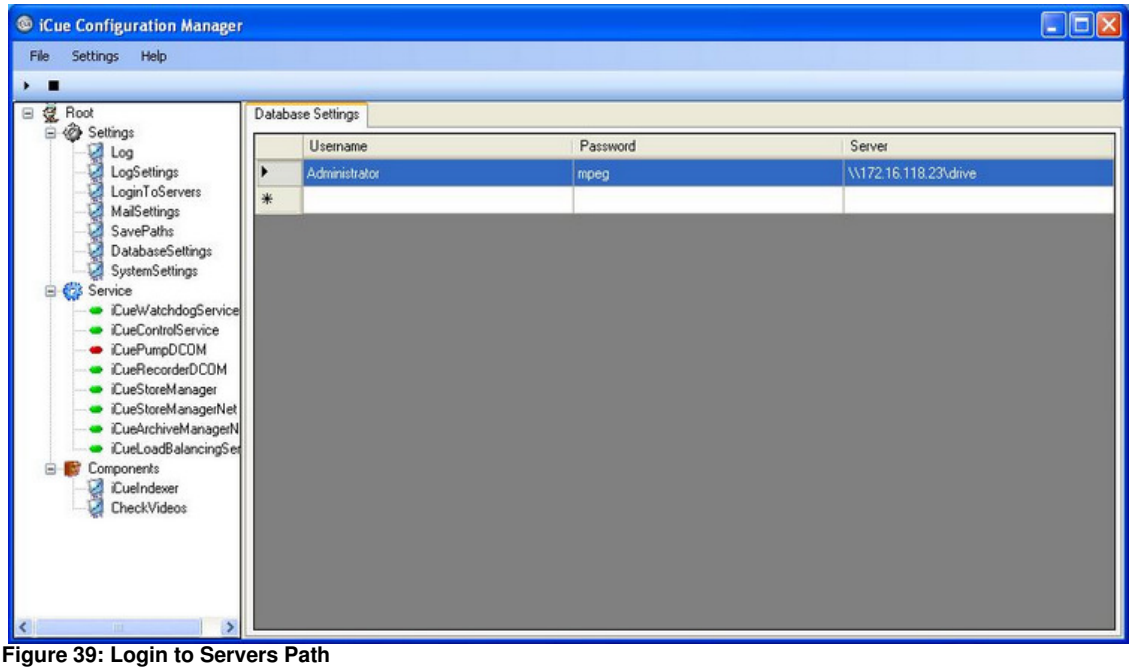


Figure 39: Login to Servers Path

3) **Redundancy Wait Time**
Path: Settings > System Settings > RedundancyWaitTime_s
Must be set to:

- Master: 1 second
- Slave: 60 second

4) **Common Storage**
Path: Settings > System Settings > CommonStorage
Must be set to 1.

5) **Name**
Path: Settings > System Settings > Name
Same name for both iCueSystems

6) **ComIP**
Path: Settings > System Settings > ComIP
Same ComIP for both iCueSystems

7) **ComPort**
Path: Settings > System Settings > ComPort
Same ComPort for both iCueSystems

8) **Enable Loadbalancing**
Path: Settings > System Settings > EnableLoadBalancing
Must be set to 1.

9) **System Count**
Path: Settings > System Settings > SystemCount
Meaning: Number of iCueSystems
value = 0: The master stays master all the time.
value > 0: The master changes every day at 24:00.
Note:
If the iCue RedundancySystem comprises more than 2 iCuePCSystem this value must be > 0.

10) **System Index**
Path: Settings > System Settings > SystemIndex
Meaning: Index of iCueSystem starting at 0.
Note:
This value must be only set if SystemCount > 0
Note 2:
If SystemCount > 0 then each iCue System of the Redundant iCue System must have an unique index.

11) **Database Synchronization**
Path: Service > StoreManagerNet > Registry Settings > DatabaseSynchronisationEnabled
Must be set to 1.

12) **Database Backup Path**
Path: Service > iCueStoreManagerNet > DatabaseBackupPath
Note:
The database backup path must be assigned to local drive

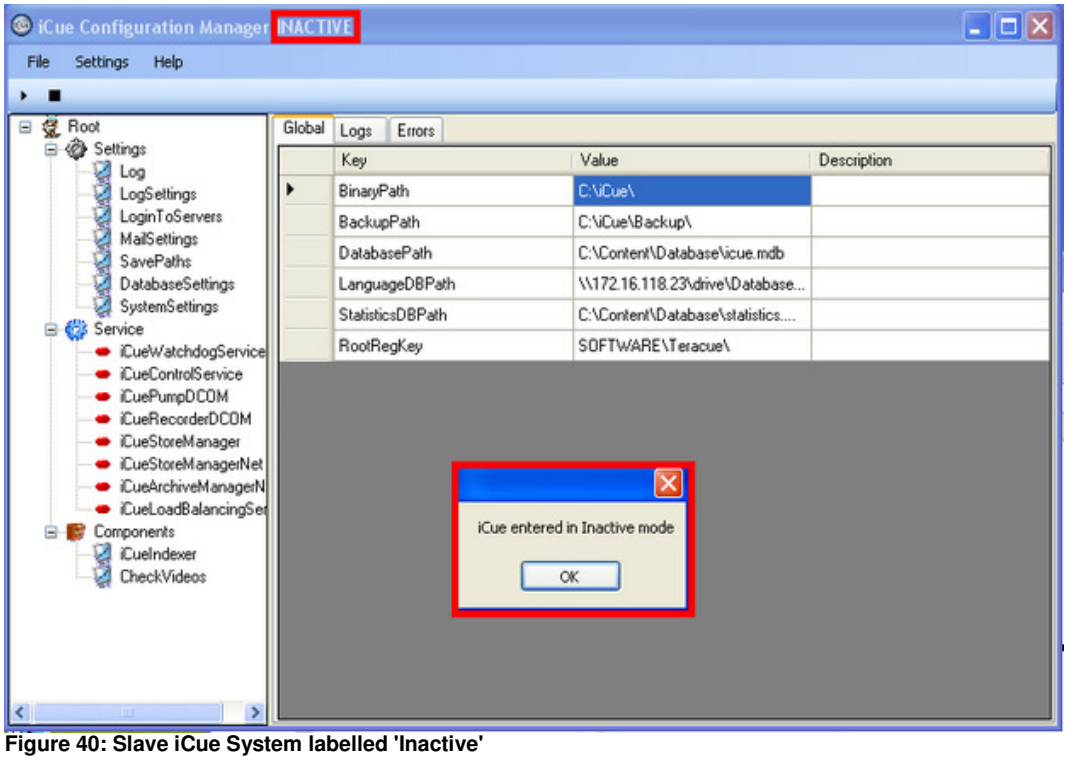


Figure 40: Slave iCue System labelled 'Inactive'

.!. Note: **Depending on configuration the database is saved by backup several times (once per day by default). Through the ages these back ups can occupy all your storage capacity. Therefore it is strongly recommended to delete obsolete backups every week.**

After configuration the services should be stopped and restarted on both iCueSystem. On the slave system an 'Inactive' label is shown (see Figure 40).

7. Final Steps and useful Hints

7.1 Customize Internet Explorer

The Internet Explorer Enhanced Security must be disabled with the following steps:

1) Open the Server Manager with **>Start >Administration >Server Manager**
2) Click on **Configure IE ESC**

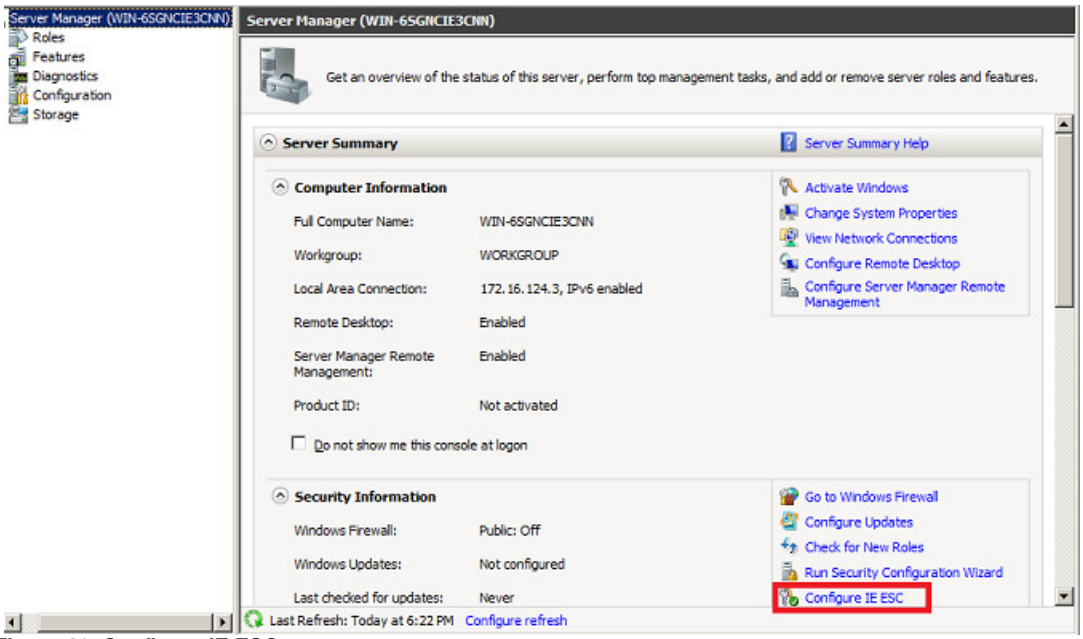


Figure 41: Configure IE ESC

3) Disable **Enhance Securities** for User and Administrators

Internet Explorer Enhanced Security Configuration
Internet Explorer Enhanced Security Configuration (IE ESC) reduces the exposure of your server to potential attacks from Web-based content.
Internet Explorer Enhanced Security Configuration is enabled by default for Administrators and Users groups.
Administrators:
On (Recommended)
Off
Users:
On (Recommended)
Off
More about Internet Explorer Enhanced Security Configuration
OK
Cancel

Figure 42: IE Enhanced Securities

7.2 Redundancy Wait Time

After installation and configuration of iCueServer the Redundancy Wait Time must be set to 1 with the following steps:

1) Open **iCue Configuration Manager**
2) Step to item **>Root >Settings >System Settings**
3) Change the parameter **Redundancy Wait Time_s** to 1 second

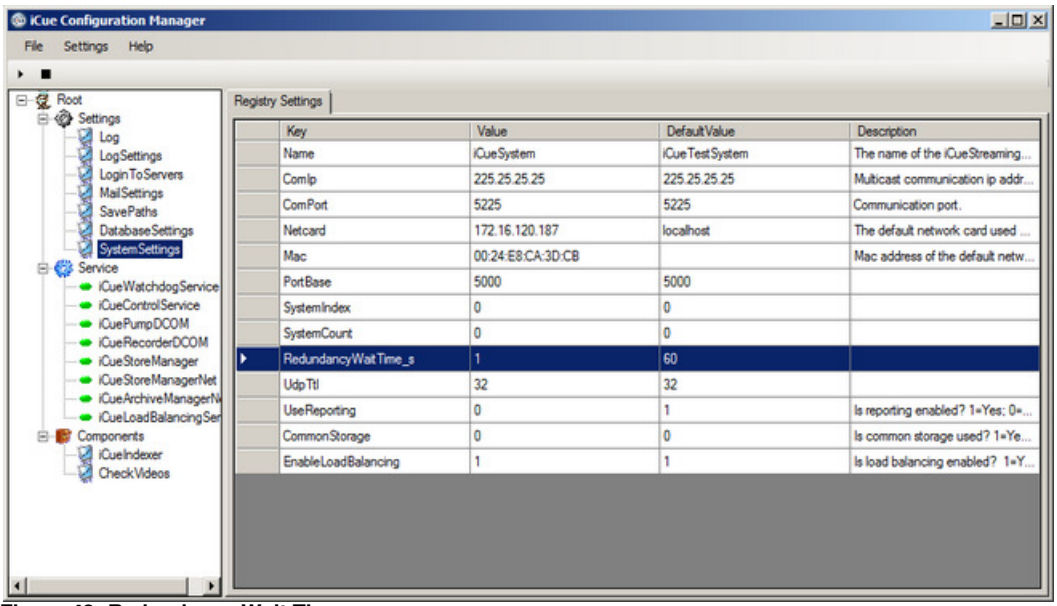


Figure 43: Redundancy Wait Time

7.3 Raid Storage Test

To reach maximum performance of your iCue system it is recommended to optimize the write speed to your storage (e.g. to your RAID storage). For this the following iCue parameters must be adapted:

- **Buffer Size**
- **File Duration**

You can find out the best values of these parameters with help of a tool called **RaidTest.exe**. Please contact support@teracue.com to get this tool plus a description how to use it.

After you find out the optimized values you must modify the Windows Registry on the iCue Server accordingly. Steps to do:

1) Open Windows registry with **>Start >Run >regedit**
2) Step to registry path **HKEY_LOCAL_MACHINE\SOFTWARE\Teracue\iCue\iCueIndexer**
3) Add the following string values:
   - BufferSize_kbyte
   - FileDuration_sec
   - RaidWriteBufferSize_kbyte

Example:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Teracue\iCue\iCueIndexer]
"BufferSize_kbyte"="10240"
"FileDuration_sec"="60"
"RaidWriteBufferSize_kbyte"="10240"
```

8. Procedure for an iCue Server Update

To update your iCue Server, please follow the steps below:

1) Open the iCue Configuration Manager. Make a right-click at ‘Service’ in the data-tree and select ‘Stop All’, to stop all services of your iCue Server. This must be done for all iCue-Servers, which you have.
2) Select ‘File’ in the menu bar and click at ‘Create Backup’, to make a Backup of your iCue Server. This must be done for all iCue-Servers, which you have.
3) Make a copy of this backup and save it in a folder, which is not in the ‘iCue’ folder.
4) Unregister all Services by right-clicking on ‘Service’ in the data tree and selecting ‘Unregister All’.
5) Close the iCue Configuration Manager.
6) Uninstall iCue. Therefor open the start menu and select ‘Control Panel’. The ‘Software’ window opens. Next, please locate iCue™ which is listed under ‘Teracue iCue’ and press the ‘Remove’ button.
7) Install now the new iCue version. Execute the iCue installation setup and follow the install wizard.
8) After the installation, please open the iCue Configuration Manager.
9) Start the database update. See chapter 4.6.
10) Check your license, whether it is valid or not. Please go in the menu bar to ‘Help’ and select ‘About’. A window opens in which you find the information whether your license is valid.
11) Check the ‘Log on As’ settings, whether these settings are correct. Therefor go in the menu bar to ‘File’ and select ‘Log On As’. A window opens in which you can check these settings.
12) Check the ‘Netcard’ setting, whether the setting is correct. Select the ‘SystemSettings’ item in the data tree and check the network card setting in the ‘Registry Settings’ tab.
13) Check the ‘Logfolder’ setting, whether the setting is correct. Select the ‘LogSettings’ item in the data tree and check the path of the log folder in the ‘Registry Settings’ tab.
14) Register all Services by right-clicking on ‘Service’ in the data tree and selecting ‘Register All’.
15) Start all Services. Right-click at ‘Service’ in the data tree and select ‘Start All’.
16) Repeat steps 3 to 15 for all iCue Servers you have.

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